WHAT IS CLAIMED IS:

1. A method of determining a physiological parameter using a pulse oximeter, comprising:

placing an oximetry sensor on the forehead of a patient, such that the sensor is placed on the lower forehead region, above the eyebrow with the sensor optics placed lateral of the iris and proximal the temple; and

operating the pulse oximeter to obtain said physiological parameter.

2. The method of claim 1 wherein said physiological parameter is an oxygen saturation value.

3. The method of claim 1 wherein said physiological parameter is a pulse rate.

4. The method of claim 1 further comprising providing a headband comprising an elastic segment sized to fit around the patient's head; and a non-elastic segment being smaller than and attached with said elastic segment, said non-elastic segment sized to span a portion of said elastic segment when said elastic segment is stretched, said non-elastic segment being larger than said portion of said elastic segment it spans when said elastic segment is not stretched; and

placing the headband over the oximetry sensor.

5. The method of claim 1 further comprising placing the oximetry sensor in a region on the forehead that is absent superficial vasoactive vessels perfused with blood from external carotid circulation.

6. The method of claim 1 further comprising placing the oximetry sensor in a region on the forehead that is absent large blood vessels.

7. The method of claim 1 wherein said placing comprises placing the sensor such that the axis connecting the sensor optics lies within 8 mm of the top of the eyebrow.

8. The method of claim 1 wherein said placing comprises placing the sensor such that one of the sensor emitter and detector lies within 5 mm of a line directly above the patient's iris and the other of the sensor emitter and detector lies lateral the iris.

9. A method of determining a physiological parameter using a pulse oximeter, comprising:

placing an oximetry sensor on the forehead of a patient, on or directly above the eyebrow such that the sensor is no more than 8 mm from the eyebrow, and such that the emitter and detector are both located lateral of the supratroclear and supraoclear arteries and medial the superficial temporal artery; and

operating the pulse oximeter to obtain said physiological parameter.

10. The method of claim 9 further comprising providing a headband comprising an elastic segment sized to fit around the patient's head; and a non-elastic segment being smaller than and attached with said elastic segment, said non-elastic segment sized to span a portion of said elastic segment when said elastic segment is stretched, said non-elastic segment being larger than said portion of said elastic segment it spans when said elastic segment is not stretched; and

placing the headband over the oximetry sensor.

11. A method for determining a location for the placement of an oximetry sensor, comprising:

measuring the temperature of a plurality of locations on an area of the body of a patient;

dividing the temperature measurements into three categories comprising cold, warm and hot regions,

wherein hot regions correspond with areas including those over large movable blood vessels and

wherein cold regions correspond with areas including those susceptible to vasoconstriction; and

selecting the region that is not hot and not cold as a location for the placement of the sensor.

12. A method for determining a location for the placement of an oximetry sensor, comprising:

providing a pulse oximeter having a monitor and a sensor;

placing the sensor on a location on the body of a patient;

measuring a pulse amplitude using the sensor;

comparing the pulse amplitude to a threshold; and

recommending a new sensor location using said monitor if the pulse amplitude is lower than the threshold.

13. The method of claim 12 wherein said recommending is done using the monitor.

14. The method of claim 12 wherein said placing comprises initially placing the sensor peripherally and said recommending comprises recommending the patient's head region

15. The method of claim 14 wherein said recommending comprises recommending a new sensor location in the forehead region.

16. An oximeter sensor, comprising:

a substrate having a shape similar to a shape of at least a portion of a patient's forehead and including a section adapted to substantially fit over a portion of a forehead of a patient;

an emitter disposed on said substrate at a position located on said section;

a detector disposed on said substrate at a distance from said emitter; and

a headband for holding said substrate against the patient's forehead, said headband sized to fit around the patient's head.

17. The sensor of claim 16 wherein said headband comprises an elastic segment sized to fit around a patient's head; and

a non-elastic segment being smaller than and attached with said elastic segment, said non-elastic segment sized to span a portion of said elastic segment when said elastic segment is stretched, said non-elastic segment being larger than said portion of said elastic segment it spans when said elastic segment is not stretched.

18. The sensor of claim 17 wherein said headband further comprises a closure mechanism coupled with said elastic portion.

19. The sensor of claim 18 wherein said closure mechanism is a hook and loop closure, a snap, a button, an adhesive, a pin, or combinations thereof.

20. The sensor of claim 17 wherein said elastic segment is rectangular shaped having a long and a short dimension, and said non-elastic segment is attached along a set of its edges with said elastic segment, wherein said set of edges are generally parallel to said short dimension.

21. The sensor of claim 17 wherein said non-elastic segment is attached with said elastic segment in such a manner that said non-elastic segment projects out from the surface of the elastic portion when said headband is not sufficiently tight, thus creating a loop which provides a visual indication that the headband needs re-tightening.

22. The sensor of claim 17 wherein said non-elastic segment is sized to not project out from the surface of the elastic portion when said headband is sufficiently tight thus indicating an adequate level of tension corresponding with delivering a pressure in the range higher than the venous pressure and lower than the capillary pressure to the forehead of the patient.

23. The sensor of claim 16 wherein said substrate is resilient and has a shape conformable to the forehead of a patient.

24. The sensor of claim 16 wherein said substrate is adhered to the inside of said headband.